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RABIN & BERDO, P.C.  
Suite 500  
1101 14th Street, N.W.  
Washington, DC 20005

EXAMINER

PAYNE, SHARON E

ART UNIT PAPER NUMBER

2875

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/810,666

Applicant(s)

YANG ET AL.

Examiner

Sharon E. Payne

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-11 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 0304.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1-11 are objected to because of the following informalities: 1) the phrase "disposed on a surface" should be "disposed on a second surface" in line 6 of claim 1; 2) the phrase "of light guide sheet" should be "of the light guide sheet" in line 6 of claim 1; and 3) the words "poly methyl methacrylate" should be written as one word in claim 3. Claims 2 and 4-11 are necessarily included due to their dependency. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 10 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee et al. (U.S. Publication 2004/0008524 A1).

Regarding claim 1, Lee et al. discloses a light guide sheet (reference number 133), a light coupling structure (reference number 130) arranged on a surface of the light guide sheet and opposite to a light source (Fig. 5), and a light emerging structure (reference number 135) disposed on a surface of the light guide sheet wherein light

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emitted by the light source can be introduced into the light guide sheet by the light coupling structure and can be drawn out of the light guide sheet by the light emerging structure, thereby enhancing light source utilization efficiency (Fig. 5, paragraph 0071 and Table 3).

Concerning claim 10, Lee et al. discloses the apparatus being applicable to a backlight module (paragraph 0002).

Regarding claim 11, Lee et al. discloses a reflecting surface (reference number 140) provided at a side of the light guide apparatus against the light source, in order to act as an illuminating device (Fig. 2).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 2 and 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. in view of Reick et al. (U.S. Patent 3,641,332).

Regarding claim 2, Lee et al. does not specifically disclose the refractive index of the light guide sheet. Reick et al. discloses the light guide being made of a material having a refractive index ( $n=1.5$ , reference character C) greater than that of the outer environment (water where  $n=1.33$ , Fig. 1) where the light source locates (Fig. 1, bottom).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the material of Reick et al. in the light guide sheet of Lee et al. to transmit light without transmitting a lot of heat to the intended location. See column 1, lines 19-40, of Reick et al.

Concerning claim 3, Lee et al. does not disclose the specific material of the light guide. Reick et al. discloses the light guide being made of polymethylmethacrylate (Fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the material of Reick et al. in the light guide sheet of Lee et al. to cause light to be transmitted from one place to another without significant light loss during transmission. See Fig. 2 of Reick et al.

7. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. in view of Deloy (U.S. Patent 6,336,728 B1).

Regarding claim 4, Lee et al. does not disclose the light coupling structure having a groove. Deloy discloses the light coupling structure being formed with at least one groove extending along the light source (Figs 3A and 3B) allowing the lights emitted by the light source to be introduced into the light guide sheet via the groove (Fig. 3B, reference number 330).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the light coupling structure of Deloy in the apparatus of Lee et al. to distribute light in a more uniform manner, thus enhancing the effectiveness of the flat panel display (column 1, lines 4-7 and lines 60-65, of Deloy).

Concerning claim 5, Lee does not disclose a groove. Deloy discloses the groove being a circular shape (Fig. 3B).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the light coupling structure of Deloy in the apparatus of Lee et al. to distribute light in a more uniform manner, thus enhancing the effectiveness of the flat panel display (column 1, lines 4-7 and lines 60-65, of Deloy).

Regarding claim 6, Lee does not disclose a groove. Deloy discloses the center of the light source being disposed at a geometrical center of the section of the groove (Fig. 3B).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Deloy in the apparatus of Lee et al. to

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distribute light in a more uniform manner, thus enhancing the effectiveness of the flat panel display (column 1, lines 4-7 and lines 60-65, of Deloy).

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. in view of Hosseini et al. (U.S. Patent 6,347,873).

Regarding claim 8, Lee et al. discloses the light emerging structure comprising at least one micro structure (reference number 110) for evenly distributing the light emitted by the light source (Fig. 6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Hosseini et al. in the apparatus of Lee et al. to "enhance[] the brightness of the backlight assembly output" (column 4, lines 25-30 of Hosseini et al.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. in view of Hosseini et al. as applied to claim 8 above, and further in view of Gotou et al. (U.S. Patent 6,435,686 B1).

Regarding claim 9, Lee et al. and Hosseini et al. do not disclose the microstructure being an irregular structure. Gotou et al. discloses the microstructure being an irregular structure (column 4, lines 45-50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the irregular microstructure of Gotou et al. in the configuration of Lee et al. and Hosseini et al. to remove dark lines from the light

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emission of the apparatus, thus enhancing the uniformity of light output. See column 2, lines 50-55, of Gotou et al.

### ***Allowable Subject Matter***

10. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to disclose the light coupling structure of the light guide sheet being disposed substantially under the light source as recited in claim 7.

### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharon E. Payne whose telephone number is (571) 272-2379. The examiner can normally be reached on regular business hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sep

  
Sharon Payne  
Patent Examiner  
Technology Center 2800